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(54) BIOPSY SPECIMEN CARRIER

BIOPSIEPROBENTRÄGER

SUPPORT D'ÉCHANTILLON DE BIOPSIE

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(56) References cited:
US-A- 4 486 536
US-A- 4 645 743
US-A1- 2008 299 605
US-A1- 2017 100 103
US-B2- 7 888 132

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Description

BACKGROUND OF THE INVENTION

[0001] The present disclosure relates to biopsy specimen carriers and more particularly to a biopsy specimen carrier adapted for prostate biopsy samples where the specimen need not be removed or handled once housed within.

[0002] There is a need to process biopsy samples through histology while maintaining orientation and integrity of the tissue sample such that a three dimensional (3D) map of tissue pathology can be accurately recreated. Biopsy samples, such as prostate tissue, are fragile, friable, and sometimes fragmented. It is critical to maintain and map orientation, such as distal/proximal and anterior/posterior ends, and the relative length of the tissue in order to accurately diagnose and map pathological changes in the tissue. There is a significant need to maintain sample integrity and reduce handling of the tissue sample during processing. Additionally, some biopsy samples may be too long to fit in a standard tissue-processing cassette. Currently, biopsies are placed on a foam biopsy sponge then placed in cassette to go through standard histopathological processing. During this process, the tissue can be damaged and orientation may be lost. There is a need to reduce biohazard and specimen providence errors (3% of samples).

[0003] For example, U.S. Patent No. 7,888,132 discloses, in part, a histological specimen retaining device for processing tissue having a permeable target 14 on a permeable sheet 12 where the tissue sample is placed on target 14 and extended flap portions 16a-d are folded over target 14 forming a packet 26 for retaining the tissue sample and processing the tissue and packet using known histological preparation and embedding methods. Target 14 includes measurement marking lines 24 for showing the size of the tissue specimen. Another device for collecting and testing fecal occult blood which permits multiple analyses of a single fecal sample is disclosed in US 4,645,743.

[0004] Despite the presence of histological specimen devices in the art, there exists a need for improving such devices, and it is to such an improved biopsy carrier that the present disclosure is addressed.

BRIEF SUMMARY OF THE INVENTION

[0005] For present purposes, a few definitions are in order:

Media:	The material that is in direct contact with the biopsy sample.
Media Carrier:	The material that holds the media in place.
Backer Sheet:	The material that holds pre-labeled media carriers in an organized manner. Sometimes referred to as a backer board herein.

[0006] Disclosed is a biopsy specimen carrier adapted for tissue biopsy samples where the specimen need not be removed or handled once housed within and including a backer board, a media carrier removably secured to the backer board which contains a needle guide, a media removably secured to the media carrier and receptive to hold a tissue biopsy sample,
a first strip of adhesive material on the media carrier adjacent to the media, and a release strip covering the first strip of adhesive material. The media carrier is foldable to cover the media carrier carrying a tissue biopsy sample and is secured to the first strip of adhesive material with the release strip removed.

[0007] Also disclosed is a method for using the disclosed biopsy specimen carrier. The tissue biopsy sample is placed on the media. The release strip is removed from the first strip of adhesive material. The media carrier is folded in half to capture the tissue biopsy sample between the folded media carrier with the first strip of adhesive material securing the folded media carrier. The folded media carrier now can be removed from the backer board and placed into a fixative solution. Thereafter, it can be cut in half and each half placed into a tissue cassette.

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

[0008] For a fuller understanding of the nature and advantages of the present method and process, reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a layout of the prostrate biopsy carriers on a backer board;
Fig. 2 is an isometric view of one of the prostrate biopsy carriers of Fig. 1 with the individual components of one of the carriers being shown in an exploded view;
Fig. 3 is one of the prostrate biopsy carriers that has been separated from the other carriers;
Fig. 4 is the individual prostrate biopsy carrier of Fig. 3 folded in half to trap the tissue sample;
Fig. 5 shows a biopsy sample being placed on the media;
Fig. 6 shows a release strip being removed from a strip of adhesive;
Fig. 7 shows the media carrier being folded in half to a the tissue specimen;
Fig. 8 shows force arrows where pressure is to be applied to keep the media carrier in the folded position;
Fig. 9 shows a person removing the media carrier from the backer board;
Fig. 10 shows the removed media carrier being placed in a vial of fixing solution (formalin);

Fig. 11 shows the printed information on the folded media carrier;
Fig. 12 shows the folded media carrier being cut in half;
Fig. 13 shows the cut folded media carrier being placed into a tissue cassette;
Fig. 14 shows an end view of media supporting a biopsy sample;
Fig. 15 shows an end view of media having a slot for the biopsy sample;
Fig. 16 shows an end view of media formed from two different pieces of different heights;
Fig. 17 shows an end view of media having a V-shaped slot for the biopsy sample;
Fig. 18 shows an end view of media formed from two different pieces of different heights;
Fig. 19 shows an end view of media having a U-shaped slot for the biopsy sample;
Fig. 20 shows an end view of media having a different U-shaped slot for the biopsy sample;
Fig. 21 shows an end view of media formed from two different sloped pieces;
Fig. 22 is an enlarged view of a single alignment fixture for locating the biopsy sample on the media;
Fig. 23 shows an alignment fixture into which a backer board fits and having 4 openings corresponding with 4 different media for supporting biopsy samples;
Fig. 24 shows an isometric view of alternative embodiment;
Fig. 25 is an end view of the alternative embodiment of Fig. 24;
Fig. 26 is an isometric view of a perforated adhesive layer;
Fig. 27 is an isometric view of a discontinuous adhesive layer;
Fig. 28 is an exploded isometric view of yet another alternative embodiment; and
Fig. 29 is an exploded isometric view of yet another a further alternative embodiment.

[0009] The drawings will be described in greater detail below.

DETAILED DESCRIPTION OF THE INVENTION

[0010] Fig. 1 shows a backer board, **10,** holding 4 rows of media carriers, **12A** - **12P,** which are arranged in adjacency. It should be understood that the number of rows of media carriers could be greater or lesser in number. The same is true for the number of media carriers present in each row. The number of media carriers shown in Fig. 1 is for illustrative purposes and does not constitute a limitation of the present disclosure. It will be observed that separation lines, **14** - **18,** are present on backer board **10** between each of the rows of media carriers to enable each row of media carriers to be separated and retained on sections of media carrier **22.**

[0011] The top row of media carriers **12A** - **12D** and shown separated from the other media carriers in Fig. 2. Additionally, media carrier **12A** is shown in an exploded view to show the various components of media carrier **12A** and the other media carriers in Fig. 1. An adhesive strip, **20,** on backer board **10** holds a media carrier sheet, **22,** in place. Adhesive strip **20** could be adhesive material laid down on backer board **10** or it could be a piece of double-sided tape. Another adhesive strip, **24,** holds a media, **26,** in place and affixed to media carrier sheet **22.** Again, adhesive strip **24** could be adhesive material laid down on media carrier sheet **22** or a strip of double-sided tape. Desirably, adhesive strip **20** is located directly below media **26.** Adjacent to media **26** is yet a third strip of adhesive, **28,** located on media carrier sheet **22** and covered by a release strip, **30.** Finally, a reinforcing tab, **32,** is located adjacent to media carrier sheet **22.**

[0012] It will be observed that backer board **10** has a notch, **34,** for release strip **30** to extend into for facilitating its removal. Each section of backer board **10** supporting a media carrier has a similar notch for the same purpose, as will be more fully explained below. Backer board **10** could be made of, for example, polyester (e.g., polyester terephthalate or PET), polycarbonate, and like materials.

[0013] In Fig. 3, the printed instructions and ruled measurements are present. They were omitted in the earlier figures for description and understanding purposes. However, media carrier **22** and release strip **30** in Fig. 3 are seen to have instructions for use. In particular, step 1 is printed on release strip 30 and is "REMOVAL". Release strip **30** extends into notch **34** for a person to easily grasp it for its removal. Step 2 is seen on the right side of media carrier **22** and is "FOLD". Step 3 also is located on release strip **30** and is "PRESS" to remind the user to press the right side of media carrier **22** onto adhesive strip **28** when media carrier **22** is folded for trapping the tissue specimen in place. Located opposite Step 2 is Step 4, which is "CUT", and indicates where media carrier **12A** is to be cut in half.

[0014] Suitable adhesives could be solvent based or water based (hydrophilic). They could be ultraviolet radiation (UV) cured. They could be, for example, a rubber or resin, an acrylic, a silicone, or like adhesive composition. Various of the adhesive layers could discontinuous, strips on either side, and could contain gaps, holes, perforations, or other design to permit pass through of fluids. Additionally, the adhesive could be biocompatible.

[0015] It should be noted that media carrier **22** is transparent and may be made from filtration grade spun bonded polyester of about 0.0122" (about 0.03099 mm) in thickness with a weight of about 2.1 oz/yd^2 (about 71.2021 g/m^2). By being transparent, the user can read the instructions and measurement indicators even when it is folded in half. It will be observed further that tab 32 contains a sample number for unique identification of the tissue biopsy sample. Measurement or geometric indicators indicate distal and proximal orientation of the tissue sample between each half and within each half of media carrier **22.**

[0016] Media **26** could be made from two different colored materials to distinguish between the distal half and the proximal half of the tissue biopsy half and such color may be transferred to the sample. Such color could be premarked with tissue dye that is actuated by the processing using, for example, encapsulated colorant in the media. Two different color dyes maybe used placed at the proximal end, distal end, and/or and at the middle of the media. Media **26** can be sliced on a microtome without fragmentation and is easily sliced. Media **26** retains the biopsy sample throughout fixation, tissue processing, embedding, slicing, staining, and cover slipping. Moreover, it does not chemically harm the sample, does not interfere with viewing the tissue on a slide, and is permeable. Media **26** could be made from needle-punched polyester about 0.050 inches (about 1.27 millimeters) in thickness and of about 3.5 oz/yd^2 (about 118.67 g/m^2) in weight. Media 26 also could be made from polypropylene, borosilicate, glass-based media, or other woven or non-woven polymers. Its thickness could range from about 0.030 inches to about 0.160 inches (from about 0.762 millimeters to about 4.064 millimeters) with a weight range of from about 3.0 oz/yd^2 to about 12.0 oz/yd^2 (from about 101.717 g/m^2 to about 406.869 g/m^2). Media 26 also could be tinted, calendared or grooved to hold a biopsy sample. Additionally, media 26 could be chemically modified, such as by oxidation or hydroxylation to improve biopsy sample retention.

[0017] Media carrier **22** also could be made from polyester, polypropylene, borosilicate, glass bead, and woven and non-woven polymers. It should be resistant to chemicals and can range in thickness from about 0.0045 inches to about 0.0209 inches (from about 0.1143 millimeters to about 0.53086 millimeters) and have a weigh range from about 0.4 oz/yd^2 to about 4.0 oz/yd^2 (from about 13.5623 g/m^2 to about 135.623 g/m^2).

[0018] Media carrier **22** further could be chemically treated via oxidation with, for example, hydrogen peroxide, and subsequently washed to improve hydrophilic character. The medium additionally could be scored, ultrasonically or mechanically, to form a channel or ridge to assist the transfer and maintenance of the specimen geometry on the media. The medium could be formed of other polymers, as recited above, which other polymers have the characteristics of the cited polymers in regard to their mechanical and optical properties. The media could be pretreated with saline solution to assist in preserving specimen geometry after transfer.

[0019] The carrier additionally could be printed with a numeric or alphanumeric code or multiple such codes. Such codes could be human readable, machine readable, or both. One of such multiple codes could be removable and used to document the link between the carrier and the location from the biopsy specimen was taken. An RFID (radio frequency identification) tag could be placed on the carrier backer board. Such tag could be embedded with additional information regarding the carrier and its use.

[0020] Returning to the drawings, in Fig. 5 a biopsy sample, **36,** is placed onto media **26** for its retention. In Fig. 6, release strip **30** is pulled away. It will be observed that notch **34** enables the user to easily grasp release strip **30.** In Fig. 7, backer board **10** is folded in half to trap sample **36.** Force arrows, **38A** - **38C,** show where the user should press to ensure that the top folded media carrier **22** is securely held to adhesive strip **28.**

[0021] In Fig. 9, the user's hand, **40,** grasps tab **32** so that media carrier **22** can be pulled away from backer board **10.** Media carrier, then, is placed into a vial, **41,** of fixative solution (e.g., formalin). In all steps, folded media carrier **22** securely holds the biopsy sample with no handling thereof. Fig. 11 illustrates folded media carrier **22** with all of the lettering present. Again the lettering was absent in the preceding figures so as to not distract from the steps being illustrated.

[0022] In Fig. 12, user's hands **40** and **42** hold folded media carrier **22** steady for cutting it in half along the "CUT" line with a scalpel, **44,** or other cutting instrument. In Fig. 13, one of the cut media carrier halves, **22A,** is picked up with a pair of tweezers, **46,** or similar device for its placement into a cassette, **48.** The other media carrier half, **22,** similarly can be placed into a separate cassette.

[0023] The media could be modified using various techniques to assist in the transfer of the biopsy specimen from the biopsy needle to the media by physically cutting or slicing of the media, forming a shape using ultrasonic, heat, or a laser. Such shape could be a channel, L-shaped or L-stepped, grooved, offset groove, or other alteration. Different media materials could be used in order to create a physical feature, such as, for example, a step, L-shape, or channel in the transfer of the biopsy specimen from the biopsy needle to the media.

[0024] The unit of measure for the media is Denier (D) and the media could range from about 1D to about 20D. The following materials have been effective in testing:

FIN05989: PET 4oz, 100% 3D;
WEB04303: PET 3.25oz, 50% 3D, 50% 1.5D;
FIN04785: PP 2.8 oz, 100% PP 2.5D;
FIN23538: PET 2.8oz, 100% 3D;
Superior Felt Style #106100 PET 6oz, 100 thick, 100% 3D;
Superior Felt Style#11004 PET 4 oz X 36" X .075 thick, 50% 3D, 50% 6D; and
Superior Felt Style#103.5050-40 PET 3.5 oz X 40" X .050 thick, 100% 3D.

[0025] Figs. 14-21 illustrate these features. In Fig. 14, a media, **50,** made of, for example, superior felt, supports a biopsy sample, **52,** atop thereof. In Fig. 15, a media, **54,** made of, for example, superior felt, has a square shape on one side into which a biopsy sample, **56,** is placed. In Fig. 15, a media, **58,** made of, for example,

superior felt, has its right side lower than the left creating a land upon which a biopsy sample, **58,** rests. In Fig. 17, a media, **60,** made of, for example, superior felt, has a V-shaped groove on one side and into which a biopsy specimen, **62,** is placed. In Fig. 18, a media, **64,** made of, for example, superior felt, has an upstanding media, **66,** of greater height and made from the same or different material, with media **64** supporting a biopsy sample, **70,** adjacent to the higher media **68.** In Fig. 19, a media, **72,** made of, for example, superior felt, has a semi-circular depression on one side and into which is placed a biopsy specimen, **74.** In Fig. 20, a media, **76,** made of, for example, superior felt, has a deeper semi-circular depression (different sloped sides) on one side and into which is placed a biopsy specimen, **78.** In Fig. 21, a media, **80,** made of, for example, superior felt, has two uneven top-sloped top surfaces with a circular depression on the higher sloped top surfaced for supporting a biopsy sample, **82.** The skilled artisan will appreciate that additional designs and combinations of media materials could be used in additional to those illustrative designs in the drawings.

[0026] The backer board additionally contains a needle guide. A portion or section of the backer board could be die cut and formed at the proximal position of the carrier. The form could be shaped in various ways to guide the trajectory of the needle/cannula and specimen onto the media. Shapes include, for example, linear, L-shaped, T-shaped, or radial. A current design is simply a slit in the backer board at the centerline of the media from the proximal edge of the backer board to the proximal edge of the media. A crease or score would be added laterally in the backer board at the proximal edge of the carrier. The user could select to manually fold up one side or the other creating a linear guide at the centerline of the media, depending on user preference.

[0027] A fixture could be used to register the backer board and, as part of the fixture, provide fixed position needle guides at each position centered on the media at the proximal edge of the carrier. The needle guide could be made with various shapes. For a single position fixture needle guide, a fixture could be used to register the backer board and, as part of the fixture, provide fixed position needle guide. The backer board could be indexed so that the needle guide would be centered on the media at the proximal edge of the carrier. The needle guide could be made with various shapes.

[0028] Figs. 22 and 23 illustrate such fixture guides that could be used to locate the biopsy specimen. In particular in Fig. 22, a backer board, **84,** carries a media carrier, **86,** upon which a media, **88** rests. An alignment fixture, **90,** attached to backer board **84** has a trapezoidal cutout into which a biopsy needle can be placed to deposit a biopsy specimen, **92,** onto media **88.** The cutout shape could be square, rectangular, curvilinear, or the like. Alignment fixture **90** could be affixed to backer board **84** with an adhesive, two-sided tape, or the like. The user inserts the biopsy needle through alignment fixture **90** and pushes the plunger while pulling the biopsy needle outwardly to deposit biopsy specimen **92** onto media **88** at a location determined by the placement of alignment fixture **90.**

[0029] In Fig. 23, an alignment fixture, **96,** carries upstanding alignment segments, **98A** - **98D.** Alignment fixture **96** has side arms with slots designed to receive backer board **84.** Backer board **84** carries 4 media carries, only one of which is labeled for ease of illustration. Each of the alignment segments mates with one of the media carriers. Placement of a biopsy specimen proceeds as described in relation to Fig. 22. When all 4 of the media carriers have a biopsy specimen, the backer board is withdrawn so that another backer board can be inserted into alignment fixture **96.** It will be appreciated that the end row of media carriers on backer board **10** (see Fig. 1) could be inserted into a similar alignment fixture. The full row of media carriers can be broken off so that the next adjacent row can be fitted into the alignment fixture.

[0030] In Figs. 24 and 25, a media carrier, **100,** supports a media, **102,** which in turn supports a sample, **104.** In this alternative embodiment, however, a removable strip, **106,** is made from a thick closed cell foam or similar material and acts as a guide to aid the user in placing specimen **104** onto media **102.**

[0031] Any adhesive layer disclosed herein could be perforated, as shown in Fig. 26 for an adhesive layer, **108.** The perforations could be the same size, different sizes, and/or patterned. Additionally, any adhesive layer disclosed herein could be discontinuous, as shown in Fig. 27 for adhesive layers, **110** and **112.** Such discontinuous adhesive layers could be provided in a variety of patterns also.

[0032] Referring now to the further embodiment in Fig. 28, the components are numbered according to Fig. 5. The difference here is that an adhesive layer, **114,** is used to atop media **26** to secure specimen **36.** In Fig. 39, media **26** has been eliminated so that specimen **36** is directed held by adhesive layer **114** onto media support **22.** Additionally, a compliant open cell or non-fluid restricting material located between the adhesive and the backer board. Compliance would ensure that the specimen would remain under a light compressive force once the media is folded over and secured.

[0033] While the apparatus, system, and method have been described with reference to various embodiments, those skilled in the art will understand that various changes may be made and equivalents may be substituted for elements thereof without departing from the scope of the disclosure. The scope of protection is however inferred by the appended claims.

Claims

1. A biopsy specimen carrier adapted for tissue biopsy samples where the specimen need not be removed or handled once housed within, which comprises:

(a) a backer board (84) which contains a needle guide;
(b) a media carrier (86) removably secured to the backer board;
(c) a media (88) removably secured to the media carrier and receptive to hold a
tissue biopsy sample;
(d) a first strip of adhesive material on the media carrier adjacent to the media;
(e) a release strip covering the first strip of adhesive material,

the media carrier being foldable to cover the media carrying a tissue biopsy sample and be secured to the first strip of adhesive material with the release strip removed.

2. The biopsy specimen carrier of claim 1, wherein the media carrier has measurement indicia and instructions for use printed thereon and the release strip has instructions for use printed thereon.

3. The biopsy specimen carrier of claim 2, wherein the media carrier is transparent.

4. The biopsy specimen carrier of claim 3, wherein the media carrier has a cut line printed thereon.

5. The biopsy specimen carrier of claim 1, with the media holding a tissue biopsy sample.

6. The biopsy specimen carrier of claim 5, where the media carrier has been folded in half.

7. The biopsy specimen carrier of claim 6, where the media carrier has been removed from the backer board.

8. The biopsy specimen carrier of claim 1, wherein the media carrier is removably secured to the backer board with a strip of a second adhesive; and the media is removably secured to the media carrier with a third strip of an adhesive.

9. An array of separable biopsy specimen carriers as defined in claim 1 carried by a backer board.

10. The biopsy specimen carrier of claim 2, wherein the measurement indicia notates the tissue biopsy sample distal/proximal and anterior/posterior ends, and the relative length of the tissue biopsy sample.

11. The biopsy specimen carrier of claim 1, wherein the media is formed from two or more sections of different composition.

12. The biopsy specimen carrier of claim 1, wherein an alignment cutout is formed into the media into which the biopsy sample rests.

13. The biopsy specimen carrier of claim 1, wherein an alignment fixture is located adjacent to the media.

14. The biopsy specimen carrier of claim 13, wherein the backer board is captured by the alignment fixture for multiple media carriers.

15. A method for capturing a tissue biopsy sample, which comprises the steps of:

(a) providing a biopsy specimen carrier adapted for tissue biopsy samples where the specimen need not be removed or handled once housed within, which comprises:

(i) a backer board which contains a needle guide;
(ii) a media carrier removably secured to the backer board;
(ii) a media removably secured to the media carrier and receptive to hold a tissue biopsy sample;
(iv) a first strip of adhesive material on the media adjacent to the media;
(v) a release strip covering the first strip of adhesive material;

(b) placing a tissue biopsy sample on the media;
(c) removing the release strip from the first strip of adhesive material;
(d) folding the media carrier in half to capture the tissue biopsy sample between the folded media carrier with the first strip of adhesive material securing the folded media carrier.

16. The method of claim 15, additionally comprising the step of printing measurement indicia and instructions for use on the media carrier and has instructions for use on the release strip.

17. The method of claim 16, additionally comprising the step of printing a cut line on the media carrier.

18. The method of claim 15, additionally comprising the step of providing an array the biopsy specimen carriers on the backer board.

19. The method of claim 15, additionally comprising supplying an alignment fixture adjacent to the media for aligning placement the biopsy sample on the media.

20. The method of claim 19, additionally comprising supplying an alignment fixture carrying a series of upstanding alignment segments for alignment placement of biopsy samples on a series of adjacent medias.

Patentansprüche

1. Träger für Biopsieproben, der für Gewebebiopsieproben geeignet ist, bei denen die Probe, sobald sie darin untergebracht ist, nicht entfernt oder gehandhabt werden muss und der Folgendes umfasst:

   (a) eine Trägerplatte (84), die eine Nadelführung aufweist;
   (b) einen abnehmbar an der Trägerplatte befestigten Medienträger (86);
   (c) ein Medium (88) abnehmbar am Medienträger befestigt und zur Aufnahme einer Gewebebiopsieprobe geeignet;
   (d) einen ersten Streifen Haftmittel auf dem Medienträger in der Nähe des Mediums;
   (e) einen Abziehstreifen, der den ersten Streifen des Haftmittels bedeckt, wobei der Medienträger faltbar ist, um das Medium, das eine Gewebebiopsieprobe trägt, zu bedecken und an dem ersten Streifen aus Haftmittel befestigt zu werden, wobei der Abziehstreifen entfernt wird.

2. Biopsieprobenträger nach Anspruch 1, wobei der Medienträger mit Messindizes und Gebrauchsanweisungen bedruckt ist und der Abziehstreifen mit Gebrauchsanweisungen bedruckt ist.

3. Biopsieprobenträger nach Anspruch 2, wobei der Medienträger transparent ist.

4. Biopsieprobenträger nach Anspruch 3, wobei der Medienträger mit einer Schnittlinie bedruckt ist.

5. Biopsieprobeträger nach Anspruch 1, wobei das Medium eine Gewebebiopsieprobe enthält.

6. Biopsieprobenträger nach Anspruch 5, wobei der Medienträger in der Hälfte gefaltet ist.

7. Biopsieprobenträger nach Anspruch 6, wobei der Medienträger von der Trägerplatte entfernt werden kann.

8. Biopsieprobenträger nach Anspruch 1, wobei der Medienträger mit einem zweiten Streifen eines Haftmittels abnehmbar an der Trägerplatte befestigt ist.

9. Anordnung von trennbaren Biopsieprobenträgern nach Anspruch 1, die von einer Trägerplatte aufgenommen werden.

10. Biopsieprobenträger nach Anspruch 2, wobei die Messindikatoren die distalen/proximalen und anterioren/posterioren Enden der Gewebebiopsieprobe sowie die relative Länge der Gewebebiopsieprobe angeben.

11. Biopsieprobenträger nach Anspruch 1, wobei das Medium aus zwei oder mehr Abschnitten mit unterschiedlicher Zusammensetzung gebildet ist.

12. Biopsieprobenträger nach Anspruch 1, bei dem ein Ausrichtungsausschnitt in das Medium geformt ist, in dem die Biopsieprobe ruht.

13. Biopsieprobenträger nach Anspruch 1, wobei eine Ausrichtungsvorrichtung neben dem Medium angeordnet ist.

14. Biopsieprobenträger nach Anspruch 13, wobei die Trägerplatte von der Ausrichtungsvorrichtung für mehrere Medienträger erfasst wird.

15. Verfahren zur Erfassung einer Gewebebiopsieprobe, das die folgenden Schritte umfasst:

   (a) Bereitstellung eines Trägers für Biopsieproben, der für Gewebebiopsieproben geeignet ist, bei denen die Probe nicht entfernt oder gehandhabt werden muss, sobald sie darin untergebracht ist, und der Folgendes umfasst:

      (i) eine Trägerplatte mit einer Nadelführung;
      (ii) einen abnehmbar an der Trägerplatte befestigten Medienträger;
      (iii) ein Medium, das abnehmbar am Medienträger befestigt und zur Aufnahme einer Gewebebiopsieprobe geeignet ist;
      (iv) einen ersten Streifen eines Haftmittels auf dem Medienträger neben dem Medienträger;
      (v) einen Abziehstreifen, der den ersten Streifen des Haftmittels bedeckt;

   (b) Auflage einer Gewebebiopsieprobe auf das Medium;
   (c) Entfernen des Abziehstreifens vom ersten Streifen des Haftmittels;
   (d) Falten des Medienträgers um die Hälfte, um die Gewebebiopsieprobe zwischen dem gefalteten Medienträger und dem ersten Streifen aus Haftmittel, der den gefalteten Medienträger sichert, zu erfassen.

16. Verfahren nach Anspruch 15, das zusätzlich den Schritt des Druckens von Messindizes und Gebrauchsanweisungen auf den Medienträger umfasst und Gebrauchsanweisungen auf dem Abziehstreifen aufweist.

17. Verfahren nach Anspruch 16, das zusätzlich den Schritt des Druckens einer Schnittlinie auf den Medienträger umfasst.

18. Verfahren nach Anspruch 15, das zusätzlich den

Schritt des Bereitstellens einer Anordnung von Biopsieprobenträgern auf der Trägerplatte umfasst.

19. Verfahren nach Anspruch 15, das zusätzlich das Bereitstellen einer Ausrichtungsvorrichtung neben dem Medium umfasst, um die Platzierung der Biopsieprobe auf dem Medium auszurichten.

20. Verfahren nach Anspruch 19, das zusätzlich die Bereitstellung einer Ausrichtungsvorrichtung umfasst, die eine Reihe von aufrecht stehenden Ausrichtungssegmenten zur ausgerichteten Platzierung der Biopsieproben auf einer Reihe von benachbarten Medien trägt.

Revendications

1. Support d'échantillon de biopsie conçu pour des échantillons de biopsies tissulaires, dans lequel l'échantillon ne doit pas être retiré ou manipulé une fois qu'il y est logé, qui comprend :

(a) une plaquette d'appui (84) qui contient un guide destiné à une aiguille ;
(b) un support de milieu (86) qui est fixé de manière amovible à la plaquette d'appui ;
(c) un milieu (88) qui est fixé de manière amovible au support de milieu et qui est à même de retenir un échantillon de biopsie tissulaire ;
(d) une première bande de matière adhésive sur le support de milieu en position adjacente au milieu ;
(e) une bande antiadhérente qui recouvre la première bande de matière adhésive ;

le support de milieu étant pliable pour recouvrir le milieu qui supporte un échantillon de biopsie tissulaire et pour être fixé à la première bande de matière adhésive lorsque la bande antiadhérente a été retirée.

2. Support d'échantillon de biopsie selon la revendication 1, dans lequel le support de milieu possède des repères de mesure et un mode d'emploi à l'état imprimé et un mode d'emploi est imprimé sur la bande antiadhérente.

3. Support d'échantillon de biopsie selon la revendication 2, dans lequel le support de milieu est transparent.

4. Support d'échantillon de biopsie selon la revendication 3, dans lequel une ligne de découpe est imprimée sur le support de milieu.

5. Support d'échantillon de biopsie selon la revendication 1, dans lequel le milieu retient un échantillon de biopsie tissulaire.

6. Support d'échantillon de biopsie selon la revendication 5, dans lequel le support de milieu a été plié en deux.

7. Support d'échantillon de biopsie selon la revendication 6, dans lequel le support de milieu a été retiré de la plaquette d'appui.

8. Support d'échantillon de biopsie selon la revendication 1, dans lequel le support de milieu est fixé de manière amovible à la plaquette d'appui avec une bande d'un deuxième adhésif ; et le milieu est fixé de manière amovible au support de milieu avec une troisième bande d'un adhésif.

9. Panoplie de supports séparables d'échantillons de biopsies tels que définis à la revendication 1, supportés par une plaquette d'appui.

10. Support d'échantillon de biopsie selon la revendication 2, dans lequel les repères de mesure indiquent les extrémités distale/proximale et antérieure/postérieure de l'échantillon de biopsie tissulaire, ainsi que la longueur relative de l'échantillon de biopsie tissulaire.

11. Support d'échantillon de biopsie selon la revendication 1, dans lequel le milieu est réalisé à partir de deux tronçons de compositions différentes ou plus.

12. Support d'échantillon de biopsie selon la revendication 1, dans lequel une découpe de mise en alignement est formée dans le milieu dans lequel séjourne l'échantillon de biopsie.

13. Support d'échantillon de biopsie selon la revendication 1, dans lequel un accessoire de mise en alignement est disposé en position adjacente au milieu.

14. Support d'échantillon de biopsie selon la revendication 13, dans lequel la plaquette d'appui est saisie par l'accessoire de mise en alignement pour plusieurs supports de milieux.

15. Procédé destiné à recueillir un échantillon de biopsie tissulaire, qui comprend les étapes dans lesquelles :

(a) on procure un support d'échantillon de biopsie qui est conçu pour des échantillons de biopsies tissulaires, dans lequel l'échantillon ne doit pas être retiré ou manipulé une fois qu'il y est logé, qui comprend :

(i) une plaquette d'appui qui contient un guide destiné à une aiguille ;
(ii) un support de milieu qui est fixé de ma-

nière amovible à la plaquette d'appui ;
(iii) un milieu qui est fixé de manière amovible au support de milieu et qui est à même de retenir un échantillon de biopsie tissulaire ;
(iv) une première bande de matière adhésive sur le support de milieu en position adjacente au milieu ;
(v) une bande antiadhérente qui recouvre la première bande de matière adhésive ;

(b) on place un échantillon biopsie tissulaire sur le milieu ;
(c) on retire la bande antiadhérente de la première bande de matière adhésive ;
(d) on plie le support de milieu en deux dans le but de capturer l'échantillon de biopsie tissulaire entre le support de milieu replié, la première bande de matière adhésive fixant le support de milieu replié.

16. Procédé selon la revendication 15, qui comprend en outre l'étape dans laquelle on imprime des repères de mesure et un mode d'emploi sur le support de milieu, un mode d'emploi étant repris sur la bande antiadhérente.

17. Procédé selon la revendication 16, qui comprend en outre l'étape dans laquelle on imprime une ligne de découpe sur le support de milieu.

18. Procédé selon la revendication 15, qui comprend en outre l'étape dans laquelle on procure une panoplie des supports d'échantillons de biopsies sur la plaquette d'appui.

19. Procédé selon la revendication 15, qui comprend en outre le fait de fournir un accessoire de mise en alignement en position adjacente au milieu dans le but d'obtenir un placement mis en alignement de l'échantillon de biopsie sur le milieu.

20. Procédé selon la revendication 19, qui comprend en outre le fait de fournir un accessoire de mise en alignement qui supporte une série de segments dressés de mise en alignement dans le but d'obtenir un placement mis en alignement d'échantillons de biopsies sur une série de milieux adjacents.

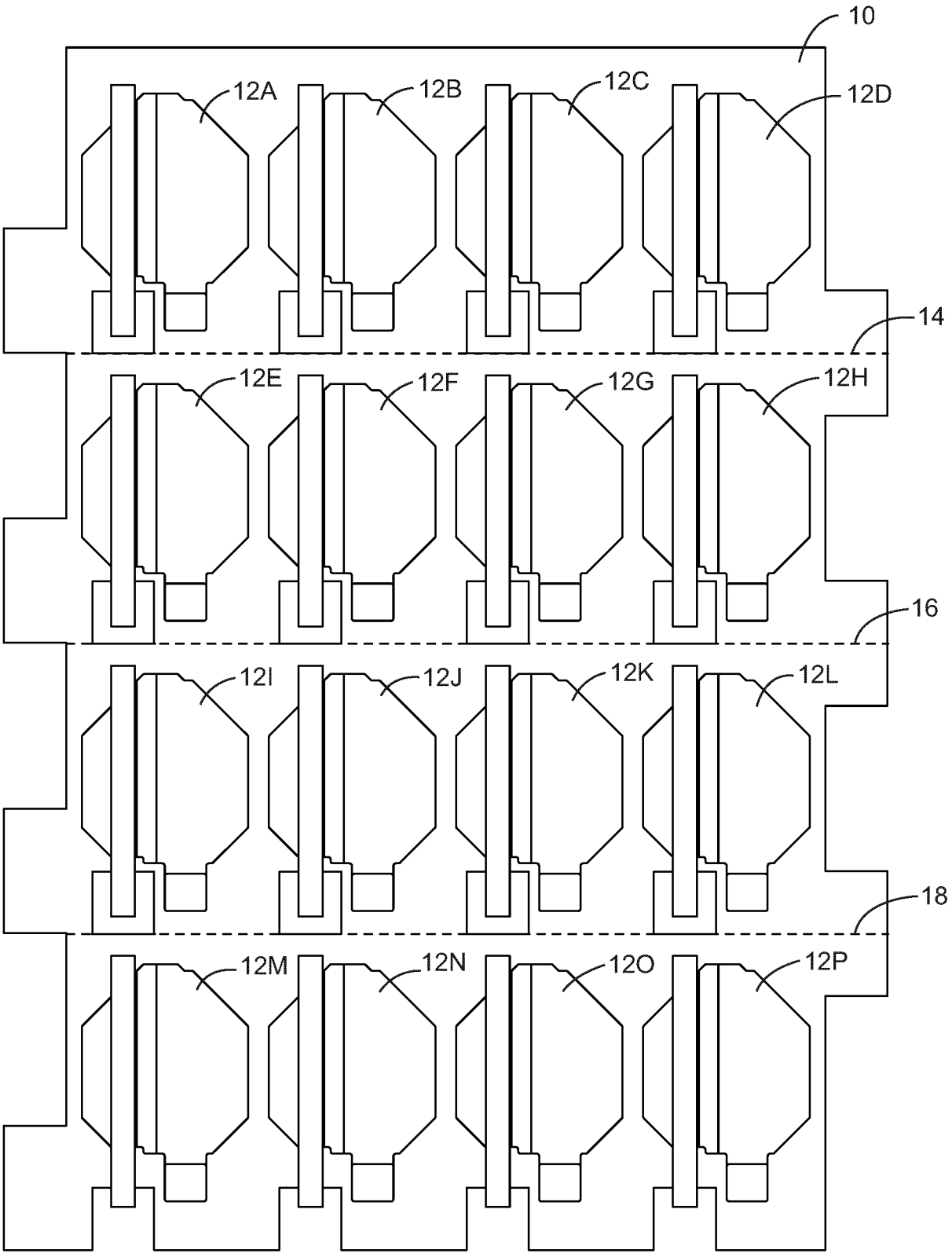

10
12A
12B
12C
12D
14
12E
12F
12G
12H
16
12I
12J
12K
12L
18
12M
12N
12O
12P

FIG. 1

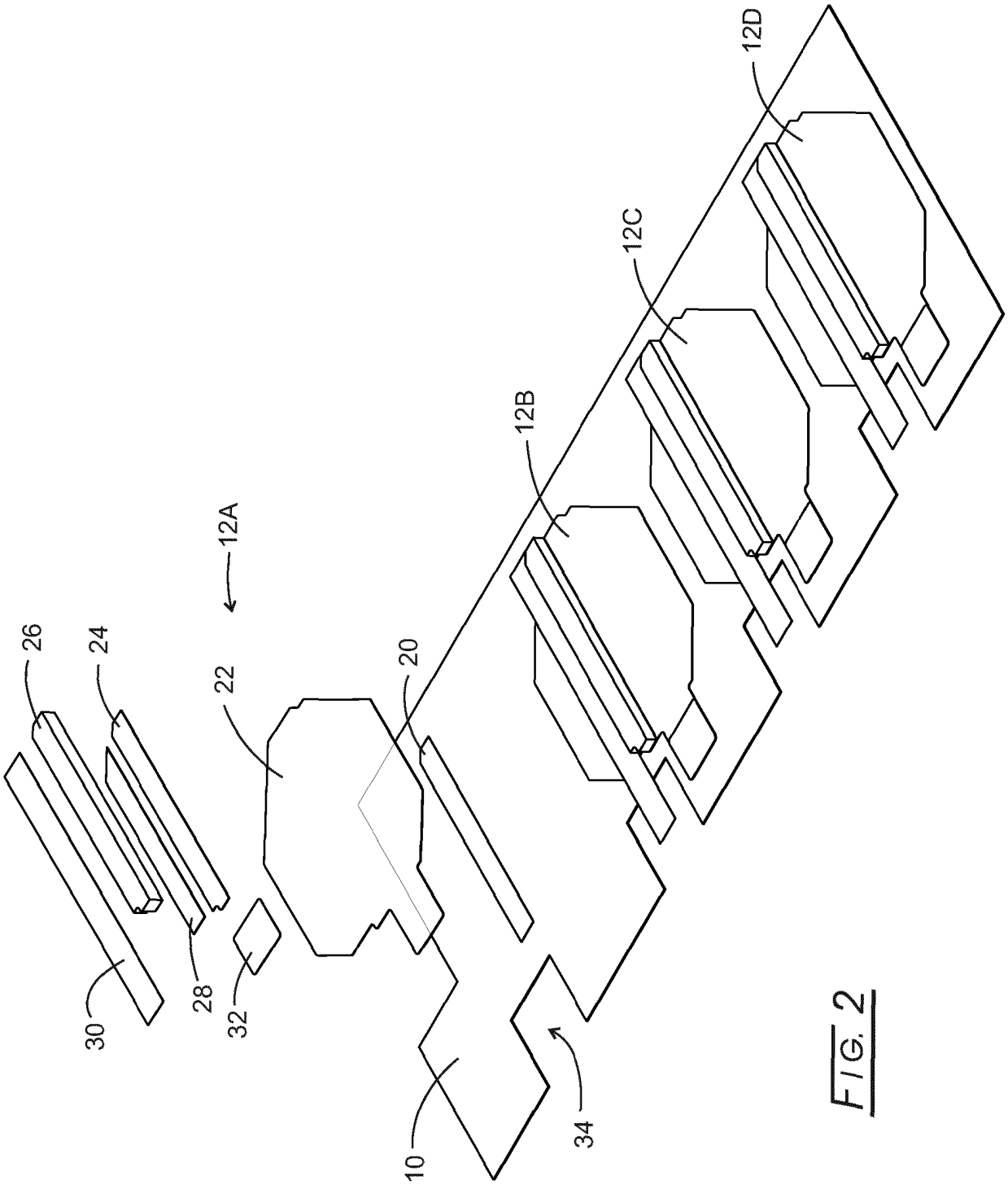


FIG. 2

FIG. 3

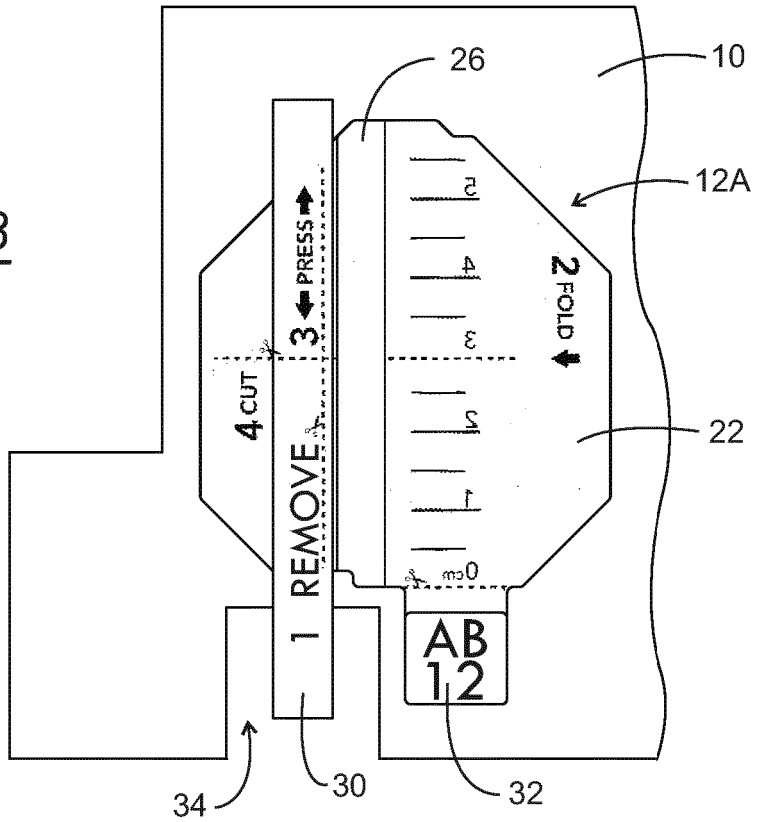
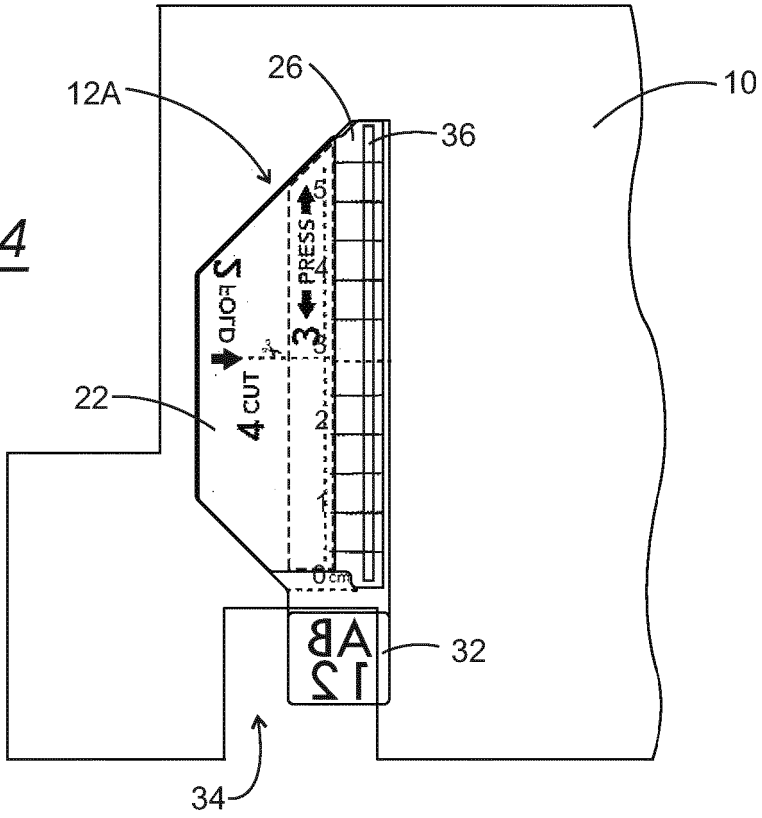

26
10
12A
2 FOLD
3 PRESS
4 CUT
1 REMOVE
22
AB
12
34
30
32

FIG. 4


12A
26
10
36
2 FOLD
3 PRESS
4 CUT
22
AB
12
32
34

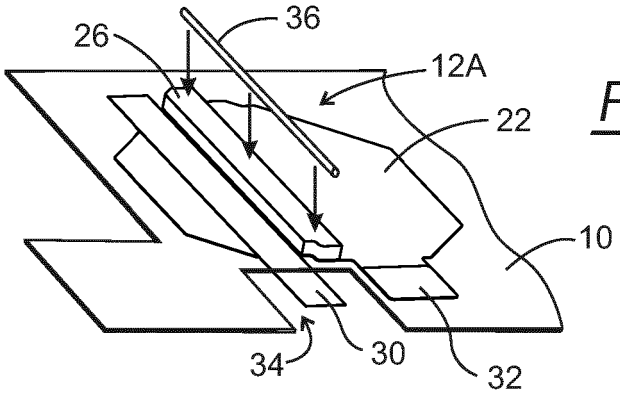


FIG. 5

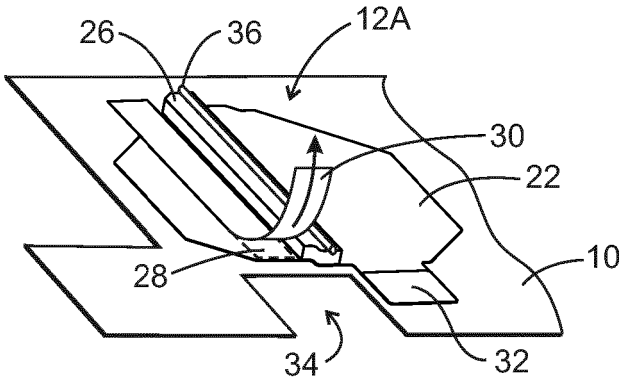


FIG. 6

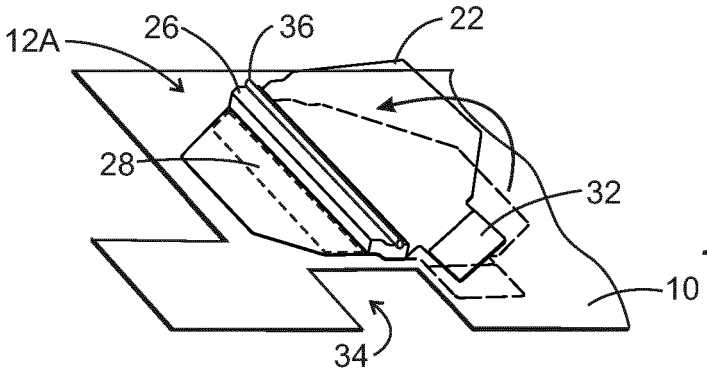


FIG. 7

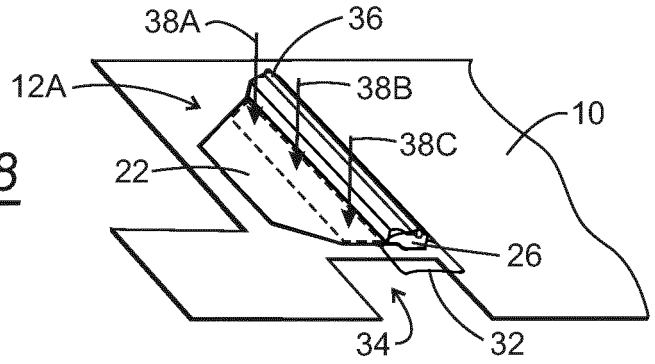


FIG. 8

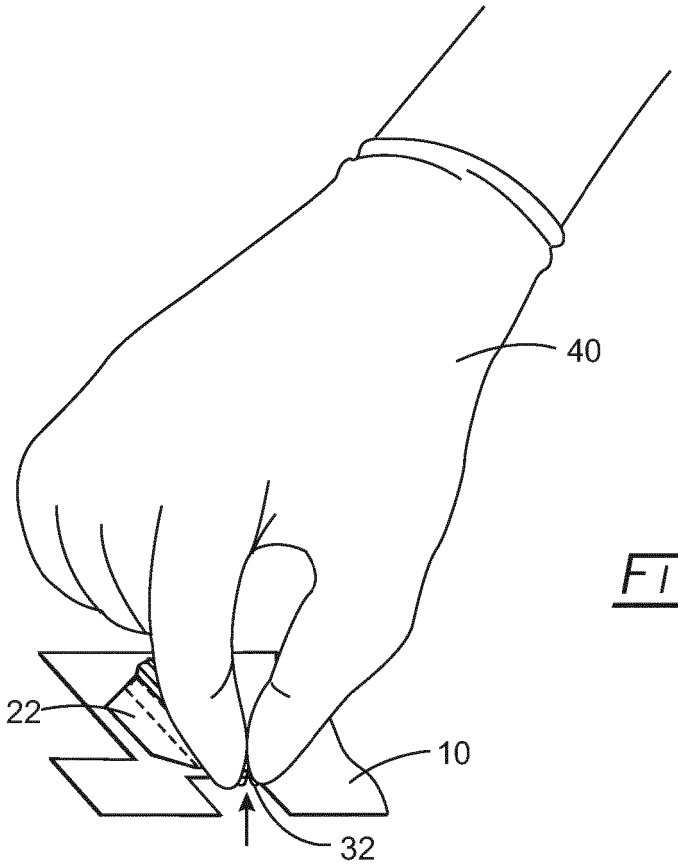


FIG. 9

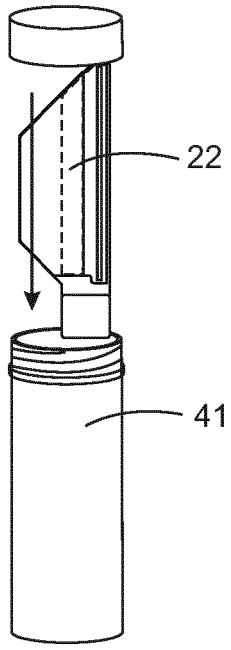


FIG. 10

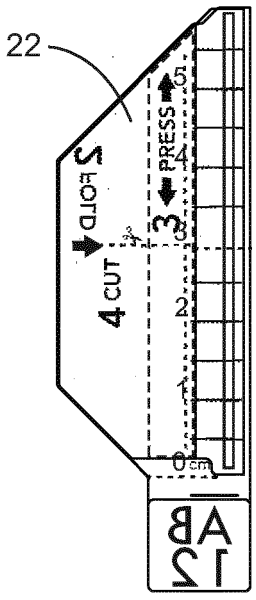


FIG. 11

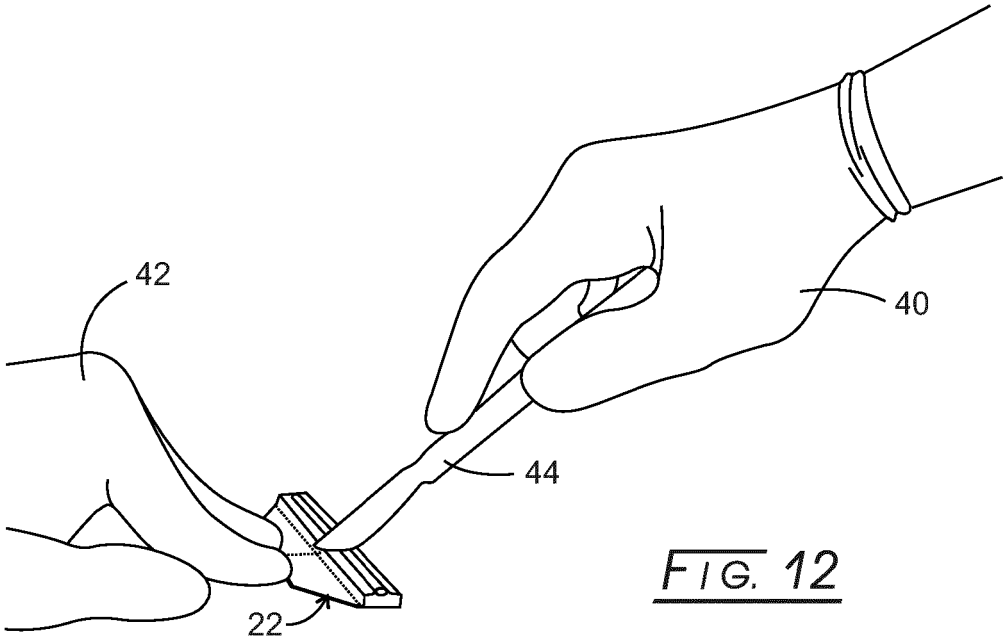


FIG. 12

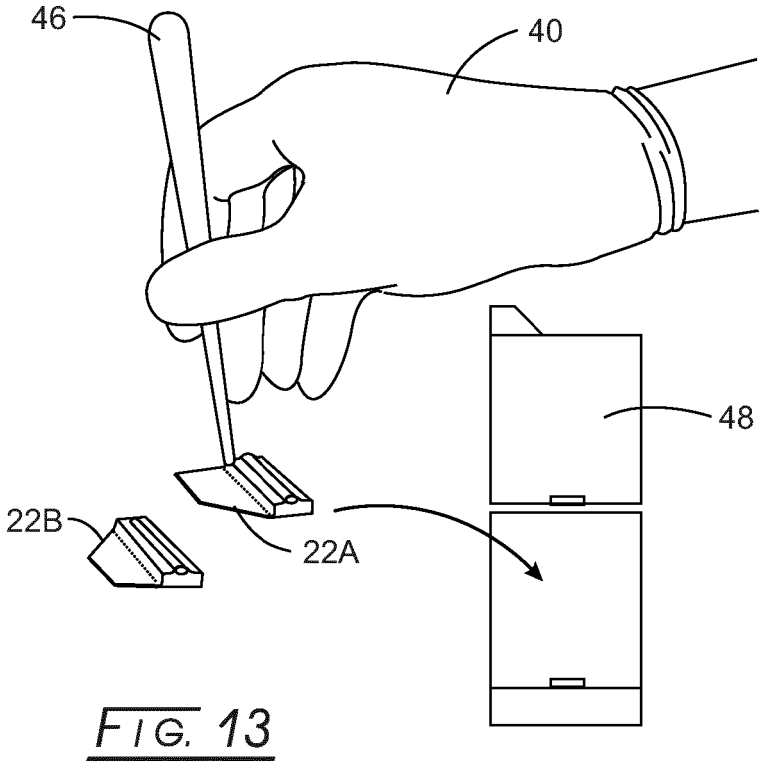


FIG. 13

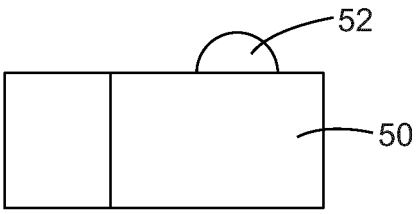


FIG. 14

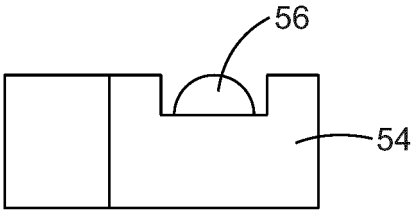


FIG. 15

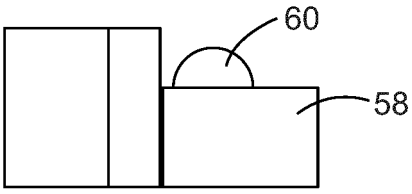


FIG. 16

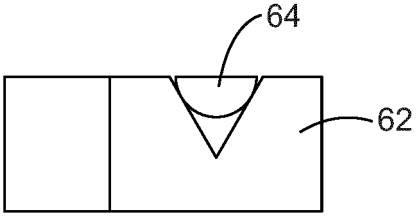


FIG. 17

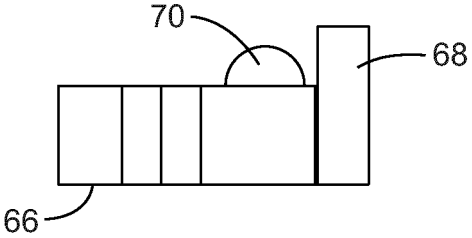


FIG. 18

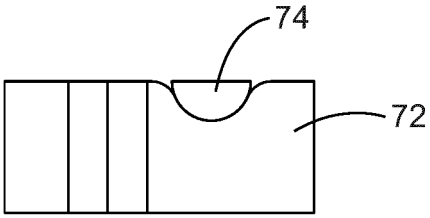


FIG. 19

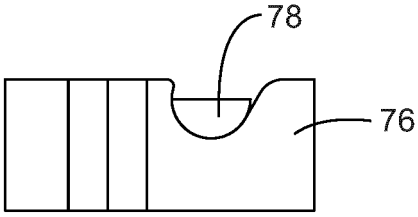


FIG. 20

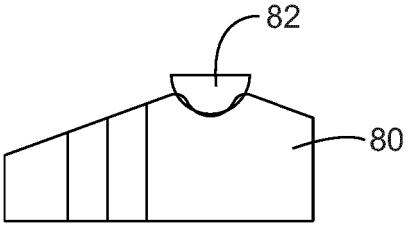


FIG. 21

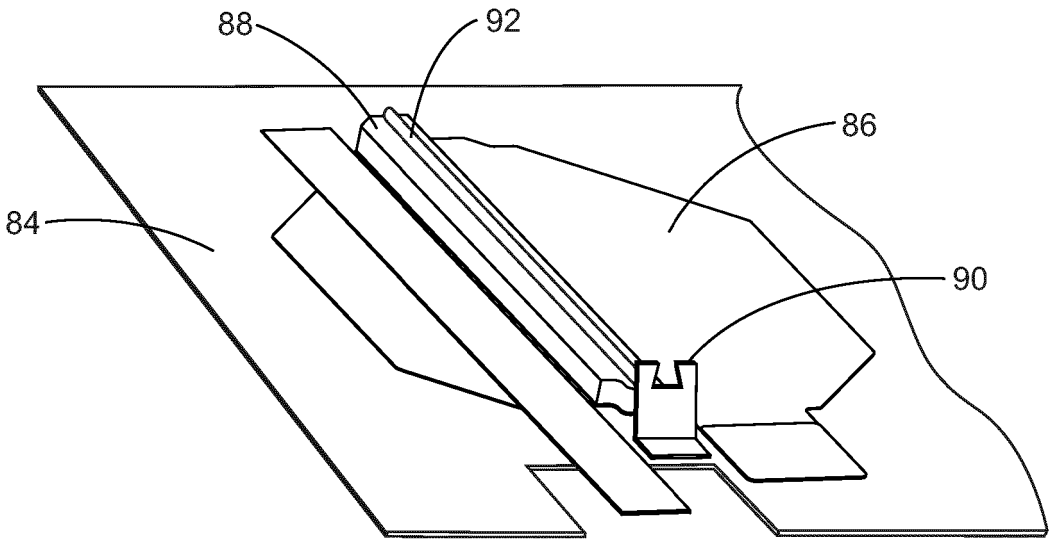


FIG. 22

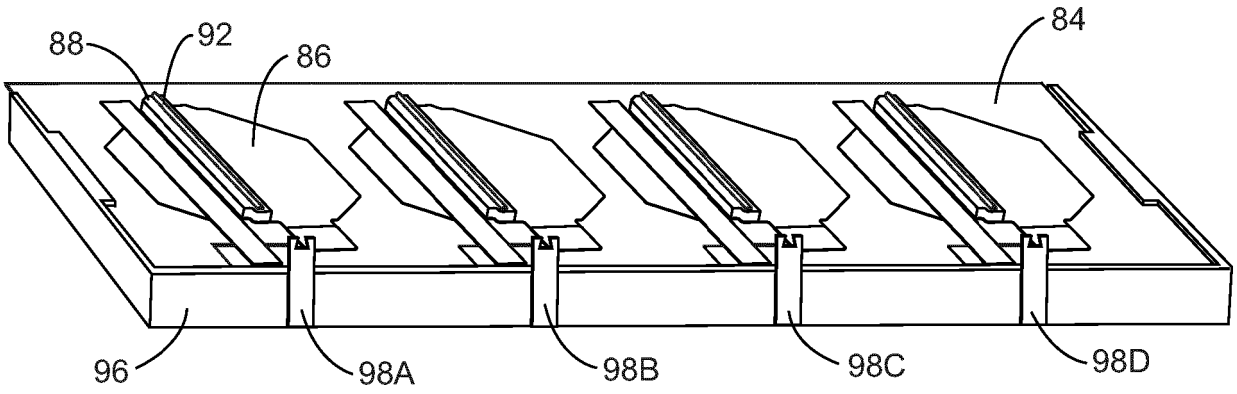


FIG. 23

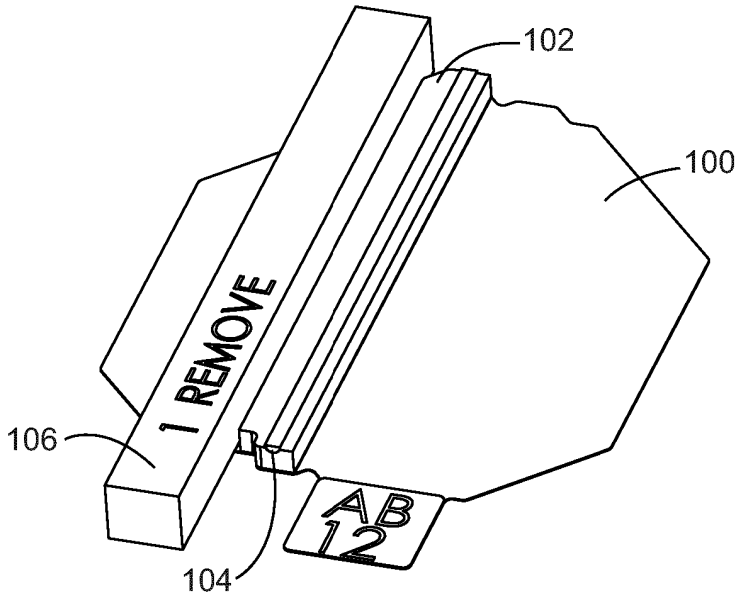


FIG. 24

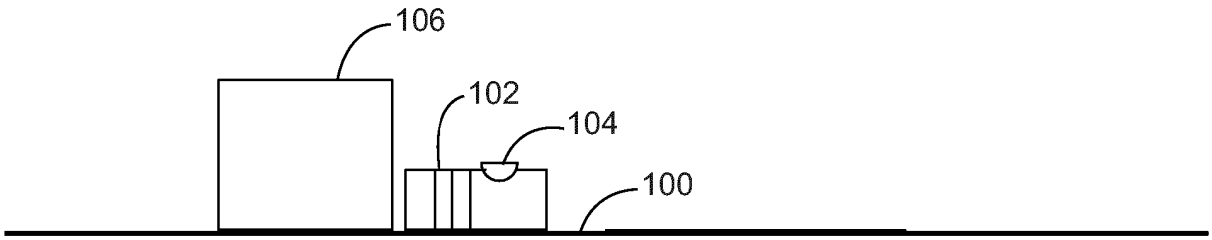


FIG. 25

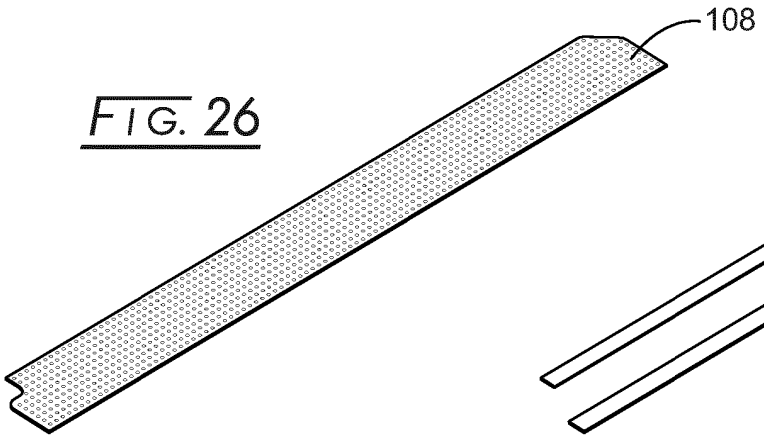


FIG. 26

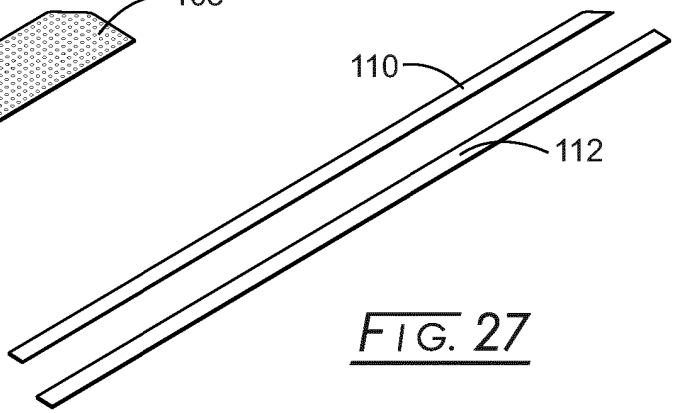


FIG. 27

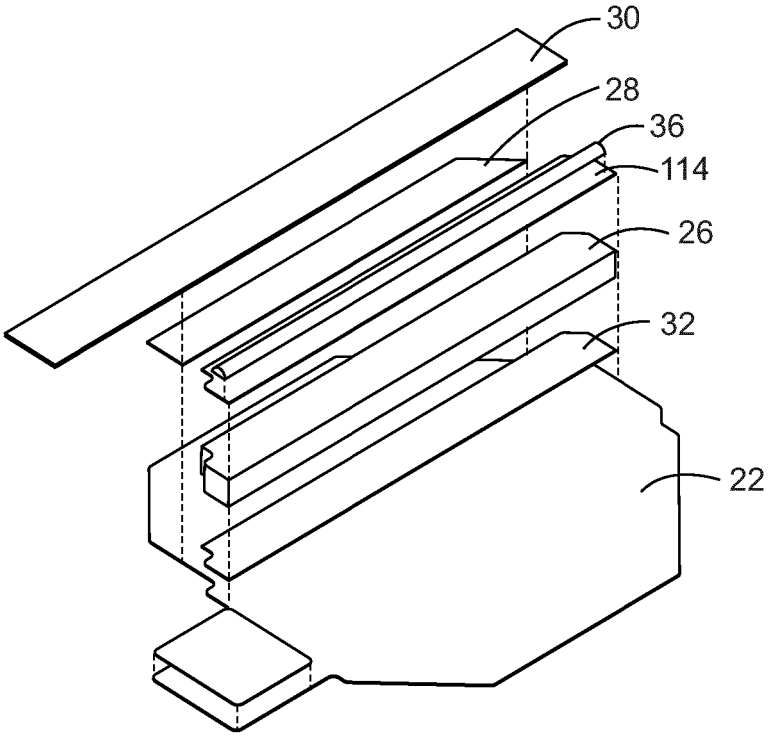


FIG. 28

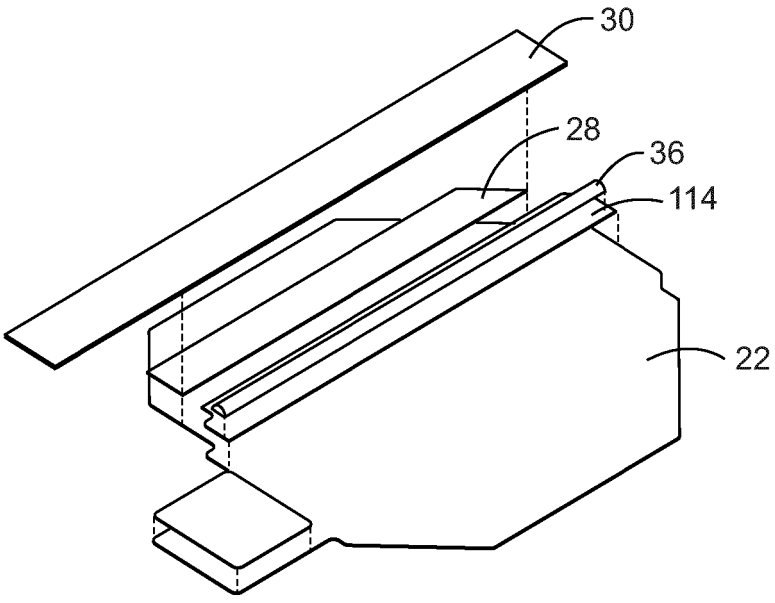


FIG. 29

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 7888132 B **[0003]**
- US 4645743 A **[0003]**